

FIG. 1
(Prior Art)

100

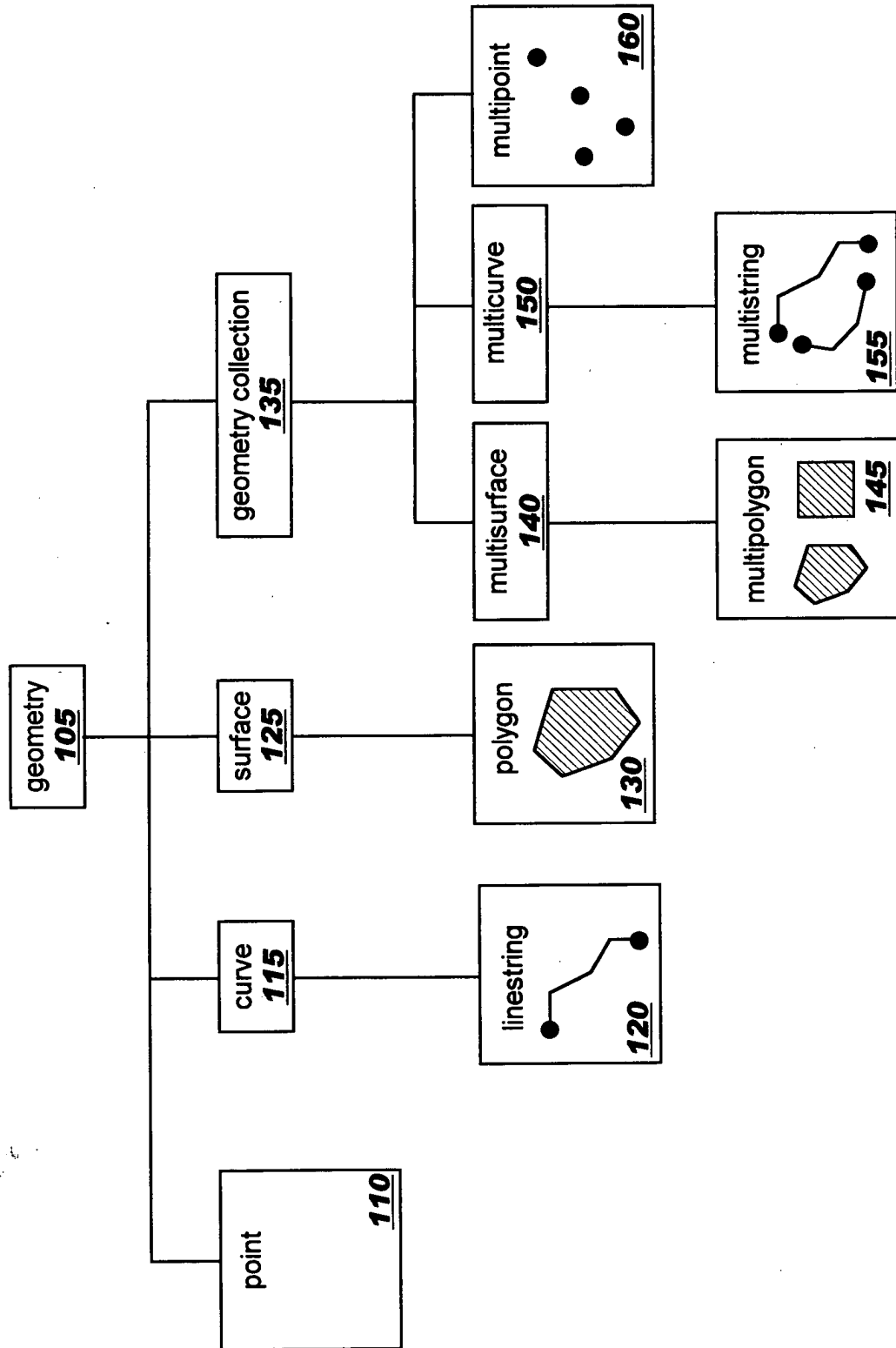


FIG. 2

200

Intersection Table **210**

| inter_id | street_id | intersect_id (stored as text string) | intersect_pt (multiple pts) |
|----------|-----------|--|--------------------------------|
|----------|-----------|--|--------------------------------|

City Table **220**

| city_id | state_id | name | envelope | polygon |
|---------|----------|------|----------|---------|
|---------|----------|------|----------|---------|

State Table **230**

| state_id | name | envelope | polygon |
|----------|------|----------|---------|
|----------|------|----------|---------|

Address Table **240**

| addr_id | address | street_id | city_id | state_id | zip_id | PT<x,y> |
|---------|---------|-----------|---------|----------|--------|---------|
|---------|---------|-----------|---------|----------|--------|---------|

Street Table **250**

| street_id | start_Pt | name | envelope | linestring | PointZM |
|-----------|----------|------|----------|------------|---------|
|-----------|----------|------|----------|------------|---------|

Points of Interest **270**

| rid | type | name | phone |
|-----|------|------|-------|
|-----|------|------|-------|

Zip code Table **260**

| zip_id | city_id | zipcode | envelope | polygon |
|--------|---------|---------|----------|---------|
|--------|---------|---------|----------|---------|

2025070807021502

FIG. 3

| | |
|------------|-----------------------------------|
| | 300 |
| 310 | 123 High House Rd, Apex, NC 27502 |
| 320 | 123 Hudson Rd, Raleigh, NC 28971 |
| 330 | 123 Davis Dr, Cary, NC 27676 |

205T20° 0302200T

Major Geometry Tables

FIG. 4

State Table

400

| state_id | abbr_name | name | envelope | polygon |
|----------|-----------|----------------|----------|-----------|
| 1 | NC | North Carolina | (b,b) | (p,p,p,p) |
| 2 | SC | South Carolina | (b,b) | (p,p,p,p) |
| 3 | VA | Virginia | (b,b) | (p,p,p,p) |

City Table

430

| city_id | state_id | name | envelope | polygon |
|---------|----------|------------|----------|---------|
| 1 | 1 | Raleigh | (b,b) | (p,p,p) |
| 2 | 1 | Cary | (b,b) | (p,p,p) |
| 3 | 1 | Apex | (b,b) | (p,p,p) |
| 4 | 1 | RTP | (b,b) | (p,p,p) |
| 5 | 2 | Charleston | (b,b) | (p,p,p) |

Zip code Table

460

| zip_id | city_id | state_id | zipcode | envelope | polygon |
|--------|---------|----------|---------|----------|---------|
| 1 | 3 | 1 | 27502 | (b,b) | (p,p,p) |
| 2 | 1 | 1 | 27707 | (b,b) | (p,p,p) |
| 3 | 1 | 1 | 27560 | (b,b) | (p,p,p) |
| 4 | 4 | 1 | 27709 | (b,b) | (p,p,p) |

205T20" 0804400T

FIG. 5

Minor Geometry Tables

Address Table

500

| addr_id | address | street_id | city | state | zipcode | PT<x,y> |
|---------|-------------------|-----------|---------|-------|---------|---------------|
| 1 | 123 High House Rd | 123 | Apex | NC | 27502 | <35.9,78.2> |
| 2 | 123 Hudson Rd | 456 | Raleigh | NC | 28971 | <34.567,78.3> |
| 3 | 123 Davis Dr | 789 | Cary | NC | 27676 | <45.789,78.9> |

Street Table

530

| street_id | start_Pt | name | envelope | linestring | PointZM |
|-----------|---------------|---------------|----------------|--|---|
| 123 | <35.8,67.9> | High House Rd | (bounding box) | constructed when address inserted into table | <1,3 1,100> x=state_id y=city_id z=zip_id M=density point |
| 456 | <35.67,67.85> | Hudson Rd | b.b | | <1,1,5,1> |
| 789 | <35.77,67.99> | Davis Dr | b.b | | <1,2,6,1> |

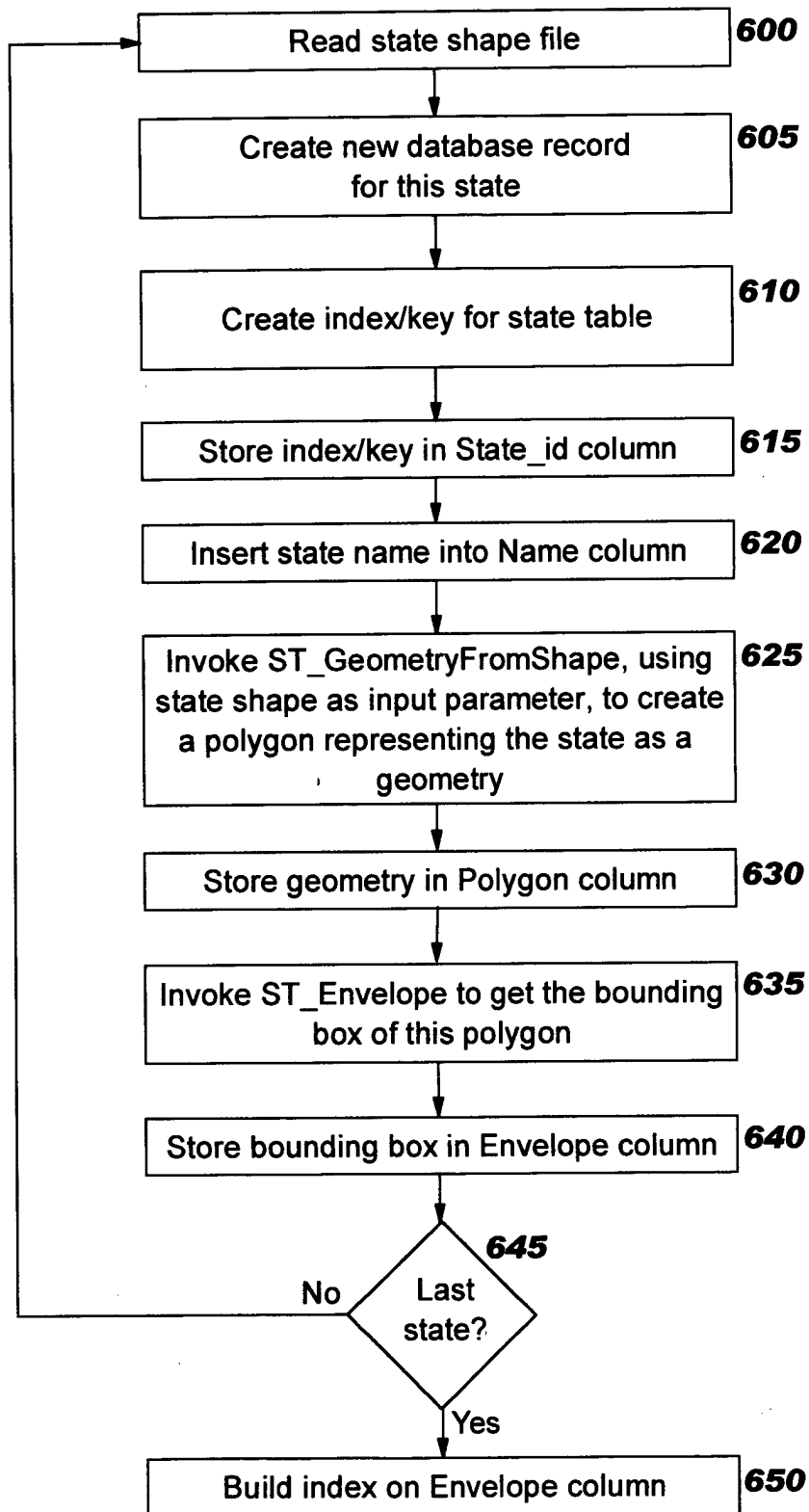
Intersection Table

560

| inter_id | street_id | intersect_id (stored as text string) | intersect_pt (multiple pts) |
|----------|-----------|---|--------------------------------|
| 1 | 123 | 456 | <35.66,78.92> |
| 2 | 456 | 123,789 | <35.66,78.92> <36.88,78.92> |
| 3 | 789 | 456 | <36.88,78.92> |

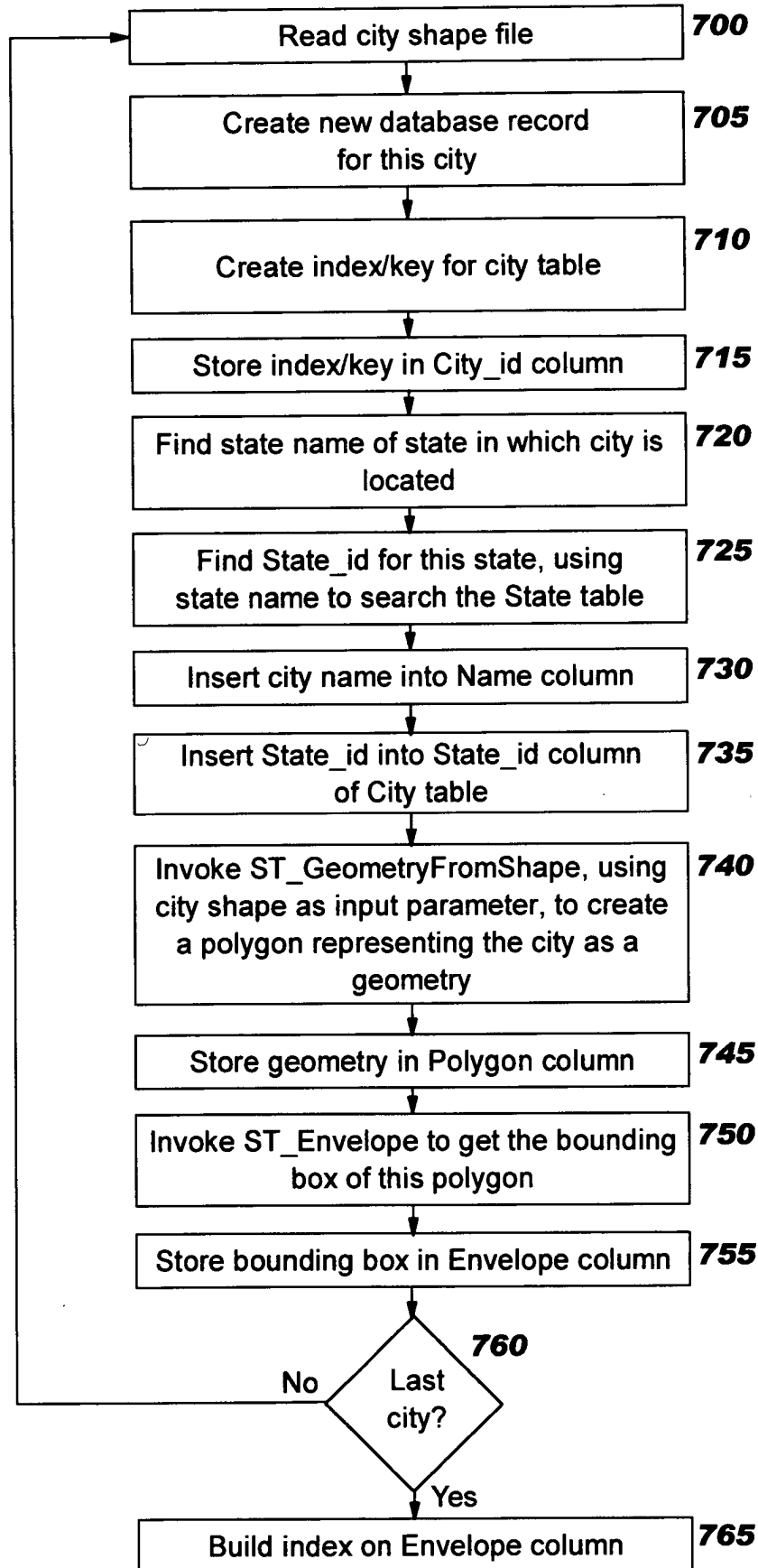
205T20" 0802200T

FIG. 6



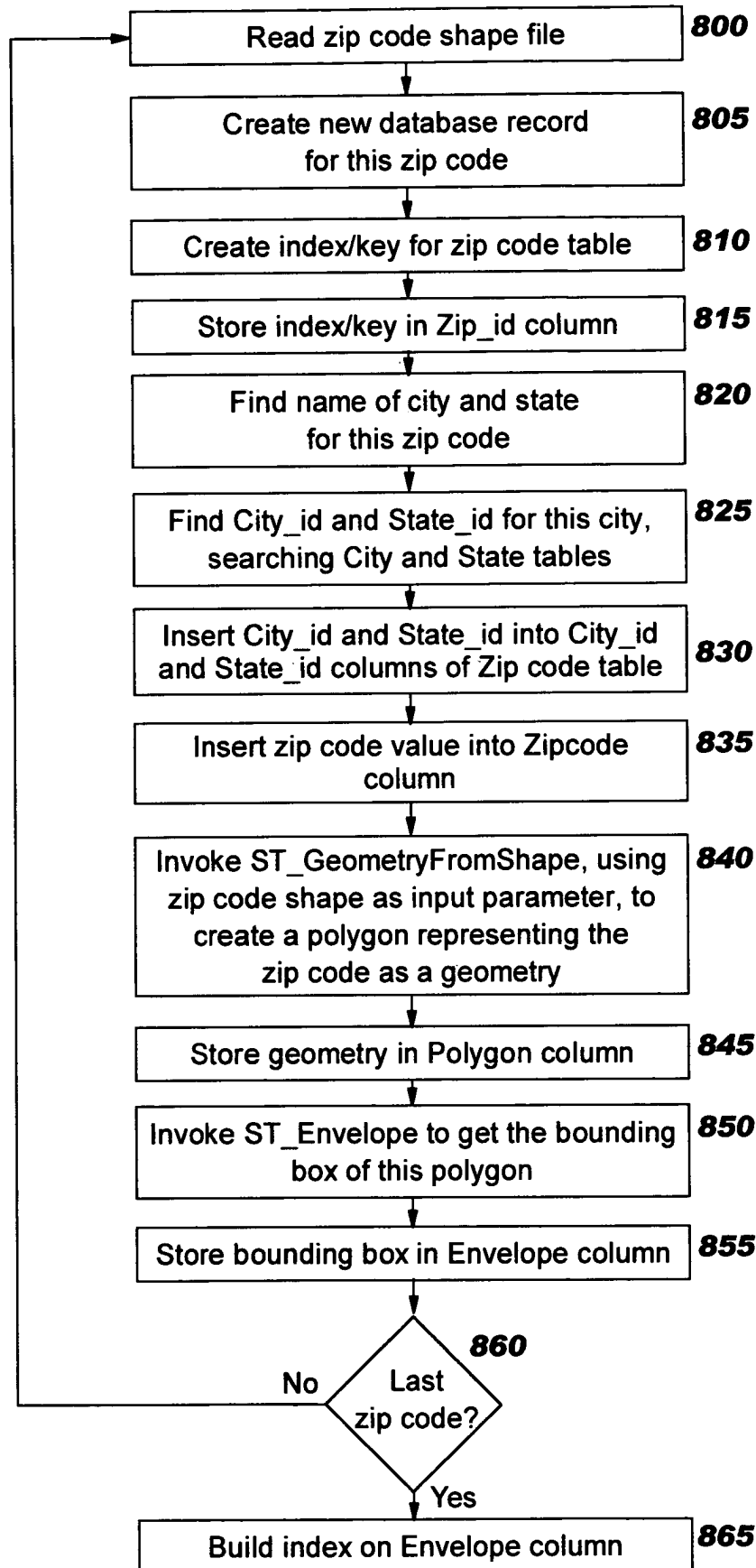
205T20 0807200T

FIG. 7



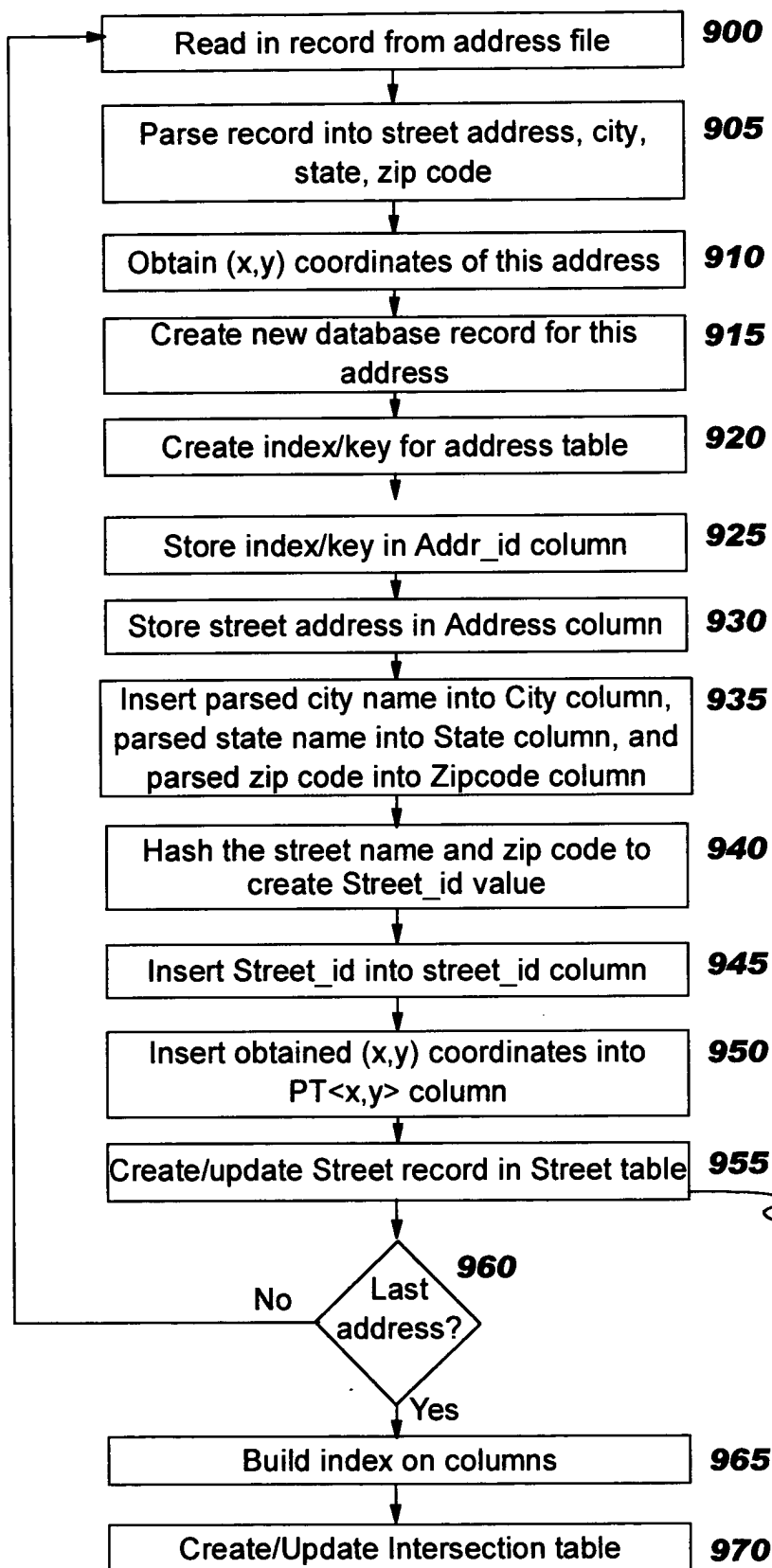
205120" 08042007

FIG. 8



205T20"0807400T

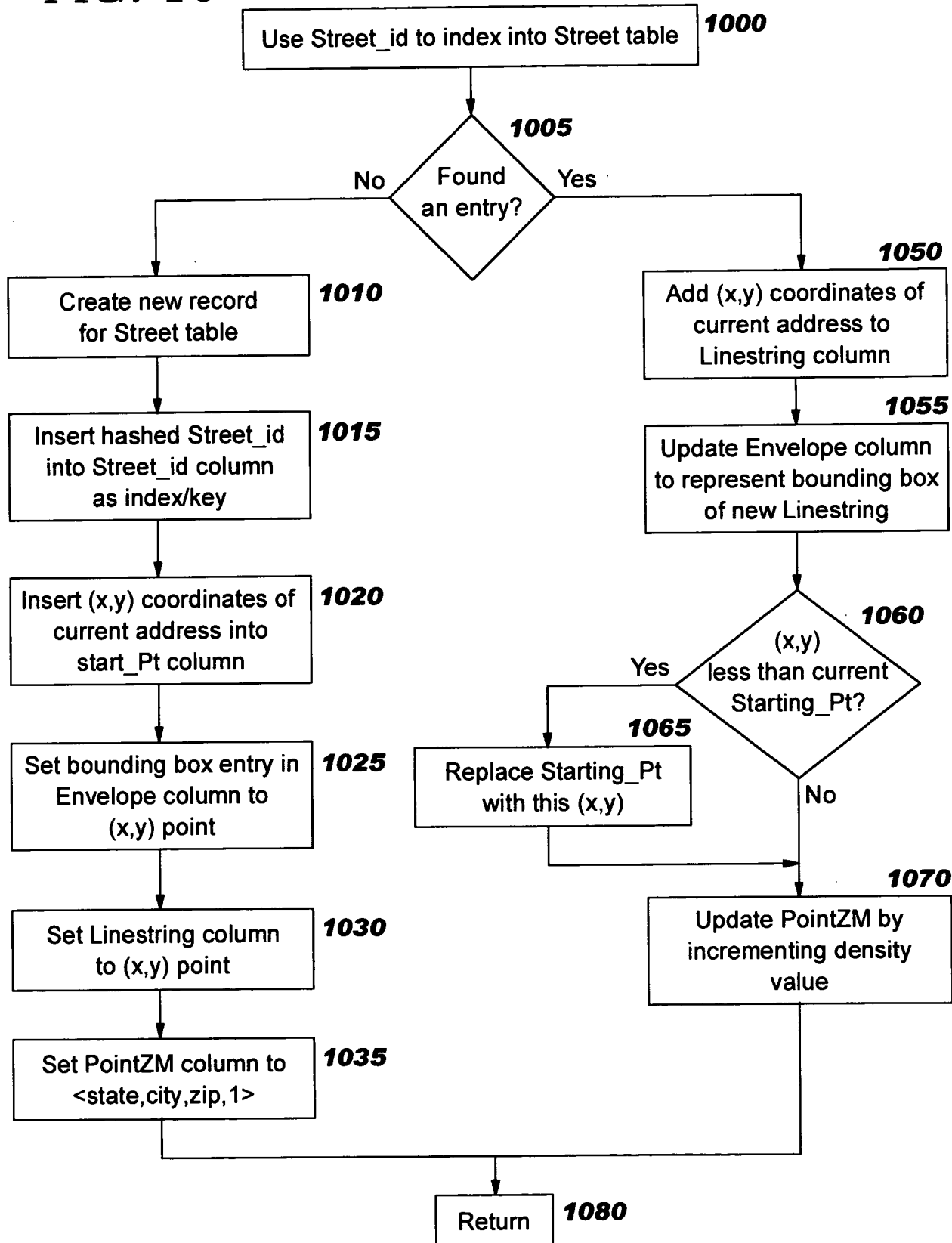
FIG. 9



See FIG. 10

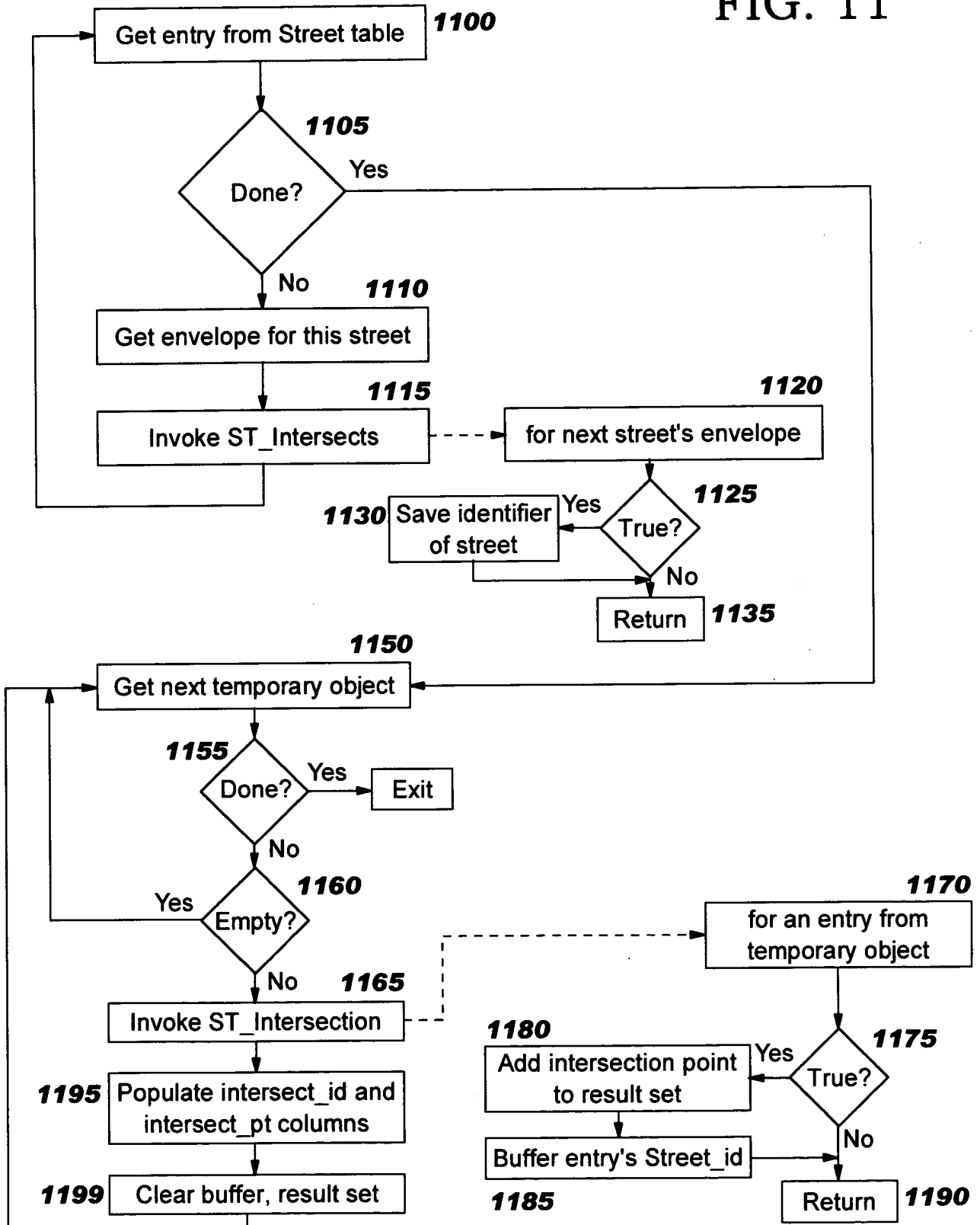
20251210 0800:021502

FIG. 10



20251201 08074001

FIG. 11



205T20" 0804200T

FIG. 12A

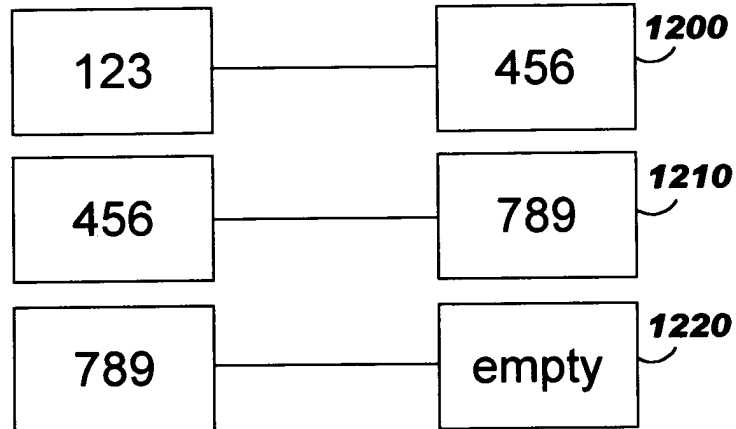


FIG. 12B

